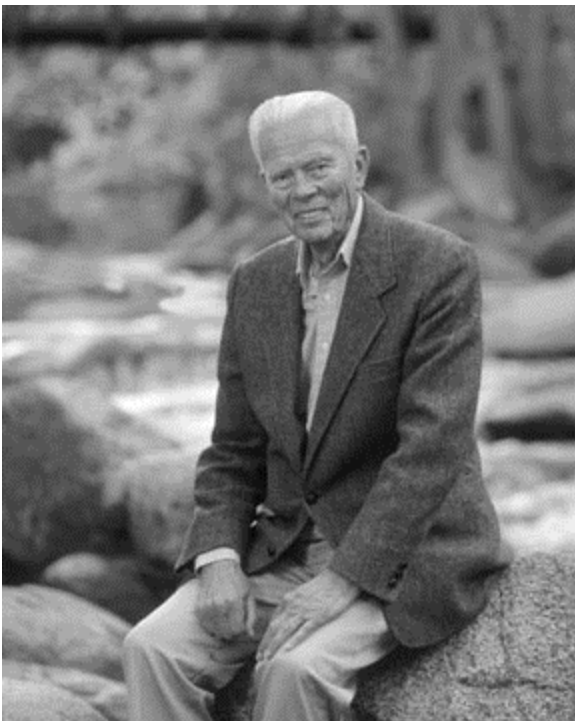


2013

Georgia Flood Risk Symposium



Co-hosted by the ASFPM Foundation and
the Georgia Association of Floodplain
Management (GAFM)

Holiday Inn Atlanta Capitol Conference
Center; Atlanta, GA

3/21/2013



MANAGING FLOOD RISK AND FLOODPLAIN RESOURCES
2013 GA Flood Risk Symposium
Sponsored by the ASFPM Foundation
in cooperation with the
Georgia Association of Floodplain Management (GAFM)
March 21, 2013



Proceedings

One of the many findings of the 2010 Gilbert F White National Flood Policy Forum was the need to “take the national dialogue to a state and local level”. The Association of State Floodplain Managers (ASFPM) Foundation found, in their work with the Forum, that there is a need to develop “local” (local, regional, state) flood risk management indicators that complement those developed as “national” indicators at the 2010 Forum (and previous Flood Policy Forums). The “local” and “national” indicators should be aligned, but need not necessarily overlap since perspectives will (and should) be different when one considers a national program - vs - a local watershed.

The Forum Action Agenda that arose out of the 2010 Forum also reflected the participants’ recommendation that there is a need to capture flood risk indicators at the state, regional, and local levels of government to complement the national level indicators developed at the Forum.

This symposium was designed by the ASFPM Foundation to bring the National Forum policy dialogues to the state and local audience. In co-sponsoring this event, the Georgia Association of Floodplain Management (GAFM) believes that the Foundation has succeeded in its objectives to: 1) engage Chapter members, 2) explore differences in scope and focus (national - vs - state and local perspectives), and 3) discuss issues, at the state and local levels, of flood risk implementation. It is also believed that the event became a much-needed venue for spontaneous and organic networking, relationship-building at all levels of government and between private and non-profit agencies that work with floodplain management, and provided the foundation for exploration of new approaches of flood risk management within the State of Georgia among all of the participants in attendance.

The Symposium Agenda

8:00 AM Registration and Coffee

8:15 AM Welcome and Self Introduction – GAFM Chapter Leadership

Symposium attendees met as a large group in the plenary room.


Matt Koch (AECOM), ASFPM Foundation Associate, gave the Symposium welcome and outlined the agenda for the day



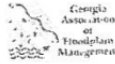
2013 ASSEMBLY OF THE
GILBERT F. WHITE
STATE FLOOD POLICY SYMPOSIA
"Managing Risk to Humans and to Floodplain Resources"




**WELCOME TO ATLANTA
& THANKS TO OUR HOST
GAFM!!**



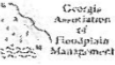
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**What Indicators should
we use to Gage Progress
in Managing Flood Risk
and Floodplain Resources?**



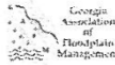
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**How do we foster the individual,
household, organizational, and
government behaviors that will
cause our dashboard indicators
to show improvement?**




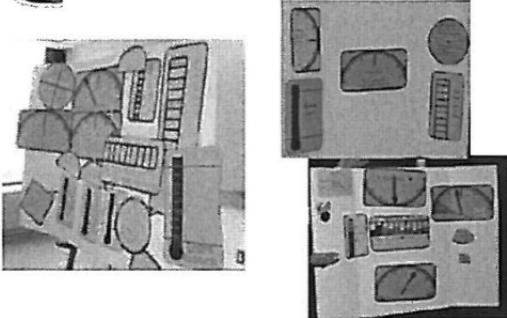

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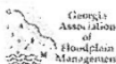
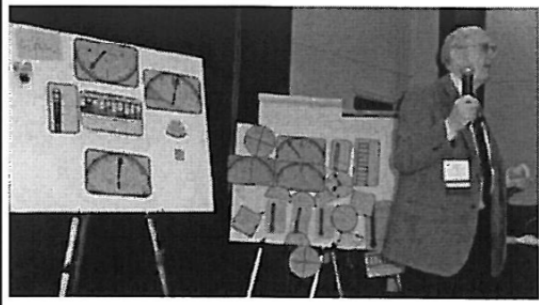
**WHAT ACTIONS CAN/WILL
GAFM SUPPORT AND ACT UPON
TO EFFECT CHANGE?**



Dashboards

Dashboards

Garrett Skinner (Atkins), the current GAFM President, gave the Symposium welcome on behalf of the Georgia Association of Floodplain Management (GAFM).

Self introductions were made by the Symposium attendees with the following items being listed as their “one major concern about flood risk within the State of Georgia”:

- How to make communities more resilient
- Southeast US hurricanes. - especially Florida
- Most inquiries from community are on "How to protect from tornados"; very few inquiries on flood risk
- Contractor / homeowner education needed on the rules (NFIP / Flood Ordinances / Stormwater Regulations)
- Extremes event – “define the hazard”
- Messaging – make it instinctive
- Education of the public - Want simple message on flood management
- Impact of BW-12 on policy base (citizens)
- Risk Identification / Communication
- What is floodplain management’s relation to ASCE – what should ASCE take back to their Board?
- Evacuation
- What Should FFMA take back to Florida?
- Effects on water/sewer/utilities
- Levees and level of protection
- Risk communication
- Levee failure
- Risk awareness and education of citizens / local officials / decision makers
- Mapping of hazards - How to engage community mappers and planners in mitigation actions that reduce risk
- Hazard Mitigation Plans
- Parks / historic sites / wildlife management areas – floodplain concerns
- Dam integrity
- Flood risk – reducing risk
- Ordinances – work to lessen risk
- Leveraging data to better communicate risk
- How to do a better job on flood warnings – need to use maps / data wisely
- Education for local government and citizens about flood insurance
- Public Works
- Finding new avenues of funding to reduce flood risk
- Taking risk dialogue to next level – local/ State policy and programs
- Flood warning / Flood safety
- Need to hear needs from local communities
- Need to integrate DFIRMS into NWS – gage info
- Flood risk impacts on real estate / housing market / housing turnover
- Need increased flood stages (not just in or out – true level of risk)
- Need more education of local staff and builders on flood risk to deal with resistance to flood regulations
- Need to integrate land use to flood risk
- Need to use zoning wisely in flood zones to decrease densities

- Need to foster a relationship between community planning and hazard mitigation planning
- Building Codes – need to promote disaster resilient Building Codes
- Need more training for HAZUS-MH (multi-hazard risk assessment for HM Planning)
- Natural resources in the floodplain – need to promote wetland and forest preservation
- Making sure the mitigation plans adequately and appropriately identify flood risk
- Need to promote reduction of flood-caused damages through flood-related HM projects and new and innovative tools
- Need to help local governments use new tools to affect change
- Consistent messaging – education and awareness
- Older / aging infrastructure – most need upgrades
- Levees, dams and other flood control structures (new and existing) – the risk needs to be identified and agreed upon by the community
- Maintenance of flood control structures is vitally important
- Education, public outreach, and affordable flood insurance – encouraging flood insurance participation
- Flood insurance affordability
- Decision making
- Impacts from neighboring communities - Looking at the entire floodplain and watershed not just what's inside the corporate limits of the local jurisdiction
- Need watershed analysis / planning / evaluation
- Older critical facilities in the floodplain
- Development in floodplain. How to close gap between designers and regulators / regulations (currently impacts are being designed without thought to the consequences)
- Want to take this information back to NE GA GAFM membership
- Dam safety and education (and the lack thereof)
- Flash floods – there is a great risk here)
- Economical struggles within a community = greater / increased risk(s)
- Insurance costs
- Need for flood insurance outside of the SFHA
- What works at the local level?
- Communication between states (regulations, best practices)
- Increased property damage
- The coastal perspective – what works?
- Incorporating CRS into standard action plan for communities
- Ways to conserve (water / aquifer recharge) while mitigating risk
- How to incorporate conservation into floodplain management education and research
- Terminology – “floodprone” instead of “floodplain” – currently there is a huge communication problem
- Effective outreach and education

- Adopting and implementation of strong floodplain ordinances
- Future floodplain mapping
- Public outreach to mitigation planners – they are the ones who do the mitigation planning projects
- Education on and of accuracy of maps. The need for better maps – the maps need to actually match the actual floodprone areas.
- Education public / government officials – the goal should be protecting property from damage –vs- push back from the property owners
- Working with public on techniques regarding building on barrier islands
- Overcoming “set it and forget it” mentality regarding detention ponds – they need maintenance!
- Information exchange
- Adjusting attitudes and perspectives about flood risk(s)
- Need to change national dialogue from "in or out" to “what is my risk?”
- Accuracy of new maps – Map Mod was a bust!
- Debris flows and mud slides
- Building state and local awareness and knowledge
- Floodplains caused by extreme events
- People don't have passion for flood risk mitigation – there is general apathy and people do little to protect themselves
- Need to build state awareness and state capacity – floodplain management is best done at the state and local level
- Regulating to the minimums (minimum NFIP standards, for example) - is the 1% standard sufficient? - are we adequately mitigating for and adapting to sea level rise and an ever-changing climate?

The following is a summation of the Group’s “Top Ten” Flood Risk Concerns (in no particular order):

- Risk Identification / Risk Communication and changing the dialogue from “in” or “out” to risk – true risk. Taking that risk message to the next level via policy and programs
- Clear and concise messaging / education / outreach to the public and to the local officials and decision makers
- Leveraging data in the risk message
- The impact of flood insurance and cost of flood insurance on citizens
- Involving other disciplines (planners, engineers, stormwater professionals) in the design and decision making process
- HM Planning – floodplain management needs to be an integral part of this process
- Land use and zoning need to be integrated into the risk equation
- New avenues of funding need to be sought after / explored / cultivated
- Impacts from neighboring communities and impacts from exterior forces (such as again infrastructure) need to be made a priority
- Communication across jurisdictional boundaries needs to be fostered (municipalities, counties, regions, states)



Brainstorming During the Plenary Session

(Photo by Tom McDonald)



Florida/CDM-Smith's Del Schwalls talks about Flood Risk Indicators

(Photo by Tom McDonald)



City of Woodstock's Kelen Shostak makes a point.....

(Photo by Tom McDonald)



Attentive attendees – during the Plenary Session

(Photo by Tom McDonald)



8:30 AM **Orientation to the Day, Forum Topic and Process Overview**

Matt Koch gave the Symposium orientation and discussed the Symposium topic – “Managing Flood Risk and Floodplain Resources” in Georgia – and discussed a little bit about how the Symposium was structured and how the Symposium would run throughout the course of the day.

Matt Koch introduced Sam Medlock: Sam Medlock, JD, CFM, is Policy Counsel for the [Association of State Floodplain Managers](#), serving dual roles for the Association and the [ASFPM Foundation](#) to provide leadership in national flood policy initiatives and foster partnerships with allied agencies, organizations, and academia in service to our members and mission. Sam has more than eighteen years of experience in land use law, hazard mitigation, and environmental policy working with stakeholders, regulators, and utilities, as Supervisor of Floodplain Programs for the Lower Colorado River Authority; Director of Planning for Flower Mound, Texas; Environmental Planner with the North Central Texas Council of Governments; and with disaster recovery teams in Guatemala, Honduras, and Nicaragua following Hurricane Mitch. While working with the NCTCOG and LCRA, both FEMA Cooperating Technical Partners, Sam was directly involved in federal flood studies and NFIP mapping activities in rapidly urbanizing areas.

Prior to joining ASFPM staff, Sam led numerous initiatives to promote safer development standards and mitigate flood risk, including co-authoring the first law journal article to tackle NAI legal issues, [Mitigating Misery: Land Use and Protection of Property Rights Before the Next Big Flood](#). In 2010, Sam received the Army Commander's Award for Public Service in recognition of her service as member of the [National Committee on Levee Safety](#), working to address levee challenges in an integrated risk management approach. Sam is a Juris Doctor graduate of Vermont Law School, has a Bachelor of Science in Government summa cum laude from Texas Woman's University, and has been a Certified Floodplain Manager since 2001.

Gilbert F. White State Policy Forum: FLOOD RISK MANAGEMENT

March 19, 2013, Austin, Texas
March 21, 2013, Atlanta, Georgia


Gilbert F. White Flood Policy Series

- Symposium 1: Quantifying Flood Risk and Floodplain Resources
 - September 2009 in Gaithersburg, MD
- Symposium 2: Risk Perception, Communication and Behavior
 - November 2009 in Washington, DC
- Roundtable on Natural Resources & Functions of Floodplains
 - November 2009 in Washington, DC
- 2010 Gilbert F. White Policy Forum: Flood Risk Management
 - March 2010 in Washington, DC
- 2011 State Policy Symposia: Flood Risk Management
 - April 2011 in Indianapolis and Boulder
- 2013 Gilbert F. White Flood Policy Forum: Managing Flood Risk in the Coastal Context
 - February 2013 in Arlington, VA
- 2013 State Policy Symposia: Flood Risk Management
 - March 2013 in Austin and Atlanta

Findings of Symposium 1: Defining and Measuring Flood Risk and Floodplain Resources


"Flood Risk"

- Flood Risk ≠ Property Damage
 - Needs to embody broader societal and environmental concerns
- Varying views & definitions of flood risk
 - Agencies have their own missions relating to flood risk
- Common Understanding
 - Desirable, but challenging




Findings of Symposium 1: Defining and Measuring Flood Risk and Floodplain Resources

- Common Desired Outcomes
 - Resilience
 - Fair & just apportionment of costs
- Desirable Outcomes should cover:
 - Life safety
 - Economic damage
 - Societal impacts
 - Resilience & Recovery
 - Ecological health
 - Human awareness, behavior & responsibility




Roundtable on Natural Resources & Functions of Floodplains

- Origins in the ASFPM "Kitchen Cabinet"
- Establishment of an alliance among NGOs and local, state & federal leaders
- Policy opportunities to raise awareness and enhance resource protection & restoration



Road to Symposium 2: Flood Risk Perception, Communication & Behavior

- Flood Risk can be presented as a suite of indicators, some of which can be numerical
- Keys: Accuracy, Consistency, Completeness
- Risks + Resources



Right???

Findings of Symposium 2: Flood Risk Perception, Communication & Behavior

Research Findings from Dr. Dennis Mileti

- Risk information has little or no effect on human choices or behaviors
- More likely to respond to frequent, clear & concise messages about specific actions

Findings of Symposium 2: Flood Risk Perception, Communication & Behavior

- Considerations
 - Messages we have been sending
 - Behaviors to foster
 - Challenges with terminology
 - Branding Flood Risk Management

Do we need a hero?
A mascot??

2010 Forum: Flood Risk Management

- Comprehensive approach
 - Governance
 - Engineering
 - Societal
 - Ecological
- Shared responsibility
 - All sectors, disciplines & levels of government
 - Minimize harm, maximize benefits
- Data & Indicators
 - Unique to scale, goals and culture

2013 Forum: Coastal Flood Risk Management

Holistic Coasts - A framework focused on sustainable management of coasts and associated uplands balancing appropriate human occupancy and use, infrastructure, commerce; and functional ecosystems with consideration of current risks and future change

Effective management of the increasing flood risk in coastal areas must be adaptable to and accomplished within such a framework

Setting the Stage: Questions & Observations

Q1: Has the past century of flood protection policy and practice produced results we would desire into the future?

Observation 1: As a nation, water resources development has been our defacto floodplain and coastal policy for nearly a century.

Will this policy approach be satisfactory for the future?

Setting the Stage: Questions & Observations

Q2: Should we be concerned about the extent and condition of our floodplain and coastal resources?


Observation 2: The ability of floodplain resources to provide fisheries, clean water, habitat, and other functions for our future is in question.

What adjustments are necessary to ensure our resources are sufficient for the future?

Setting the Stage: Questions & Observations

Q3: How do we craft a flood risk and resource management policy and strategy that will make a difference in human behavior?

Observation 3: Individuals and policy makers simply do not understand or choose to ignore flood risk or threats to our resources.



Setting the Stage: Questions & Observations

Q4: How do we adapt to a changing world (climate, population, economies...)?

Observation 4: We traditionally are much better at planning based on past histories vs. forecasting with many unknowns.

A Flood Risk Management and Resource Strategy has Broad Implications

- Introduces "risk continuum" vs. "at risk or not at risk"
- Should allow the ability to benchmark and monitor risk at various levels
- Opens the door for considering and communicating a series of actions that increase or decrease risk
- To be effective must be inclusive of a variety of uses and functions within floodplains and coastal areas.

Challenge #1

What is the "The overarching vision"?

- Flood risk is controlled
- Individuals and policy makers act in an appropriate manner
- Floodplain resources are sufficient in areal extent and quality

Challenge #2

How do we benchmark and monitor our progress towards achieving this overarching vision?

Challenge #3

How do we get the public to act in a more risk aware and resource sensitive manner?

Challenge #4

What do we need to adjust in policy and programs to meet the overarching vision and overcome other challenges?


Challenge #5

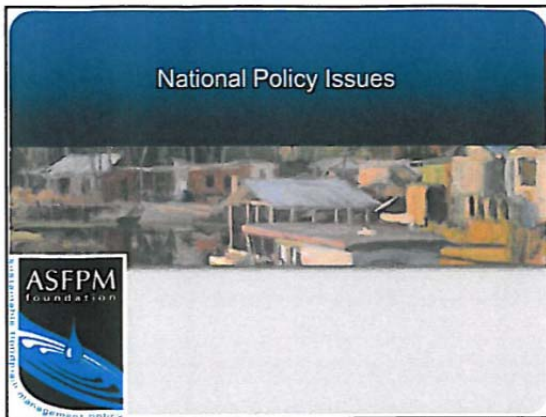
What are the knowledge gaps that we need to fill?

Why Now... Why Here?

- Embarking on a new approach that could influence the next 50-years or more
- Growing flood risk and declining resources is not sustainable for our future
- Unique and exclusive gathering of experts to debate and shape these issues

Discussion





Association of State Floodplain Managers

Mission: Mitigate the losses, costs, and human suffering caused by flooding.
and
Protect the natural and beneficial functions of floodplains.

ASFPM Chapters

15,000 members
 ■ 35 Chapters
 ■ State Assoc. & Pending Chapters

ASFPMFoundation.org

- Founded in 1996
- Board of Trustees and Bylaws
- 501(c)(3) Tax Exempt
- **MISSION STATEMENT**
To promote public policy through select strategic initiatives and serve as an incubator for long-term policy development that promotes sustainable floodplain and watershed management

Investing in Floodplain Managers

- Gilbert F. White Flood Policy Forum
- Nick Winter Memorial Scholarship Fund
- No Adverse Impact© (NAI)
- National Flood Programs in Review
- FloodManager Interactive Game
- Research & Publications

Services to Chapters

- ✓ National representation and voice in Washington, DC
- ✓ Notifications and newsletters on national policy updates, letters to policy makers, and current events
- ✓ Support and resources for training, State conferences, and committees
- ✓ Chapter administration (*optional*)
- ✓ Website hosting (*optional*)

ASFPM Policy Activities

- Represent all ASFPM members
- **Legislative**
 - Technical assistance for members & staff
 - Legislative strategy and drafting
 - Invited testimony
- **White House**
 - Technical assistance to CEO, OMB
 - Comment on draft policies and regulations
- **Agencies**
 - USACE & FEMA; NOAA, USGS, EPA, HUD, DOT, USDA, DOI
 - BoR, NRCS
- **In the Courts**
 - Amicus briefs
 - Expert testimony
- Partnerships with Allied NGOs

Briefing Overview

- National Policy Initiatives & Activities
- ASFPM "On The Hill"
- Conclusion:
Preparing the Nation for Future Floods

Briefing Overview


- National Policy Initiatives & Activities

National Policy Leadership

President's Statement Accompanying Executive Order 11988

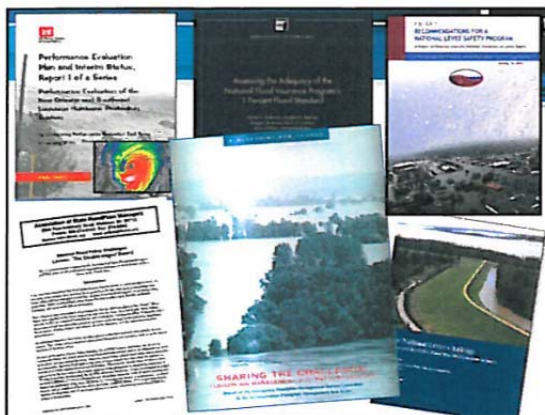
- Despite substantial efforts by the Federal Government to reduce flood hazards and protect floodplains, annual losses from floods and adverse alteration of floodplains continue to increase. The problem arises mainly from unwise land use practices.
- Because unwise floodplain development can lead to the loss of human and other natural resources, it is simply a bad Federal investment and should be avoided.

- May 24, 1977



Policies Contribute to Risk

- Federal Policies**
 - NFIP & the 100-Year Standard
 - Emphasis on structural approaches
 - Disaster relief environment
 - Lack of attention to climate adaptation
- States & Communities**
 - Control land use for short-term benefits
 - Perceive flooding to be a federal problem
 - Externalize the costs & consequences
- Public**
 - Unaware of – or unwilling to accept – residual risk
 - Misplaced concern about having to obtain flood insurance




Key Recommendations of Reports: 1970s - present

- "100-year" standard inadequate for flood damage reduction structures, especially for urbanized areas.
- Structures, such as levees, floodwalls, and dikes alone will not reduce risk – nonstructural measures must be integrated.
- Federal policies may present barriers to nonstructural approaches and local initiative for management of flood-prone lands.
- Climate impacts threaten coastal communities and economies. Some states and local governments are working to prepare for these impacts by adopting modern standards and long-term strategies to allow more room for rivers, beaches, and coastal ecosystems.
- Although floodplain and land use management is a state and local responsibility, the federal government plays a critical role in providing standards, funding, and technical assistance.

Initiatives to Reduce Risk

- Federal Interagency Floodplain Management Task Force
- Principles & Guidelines for Federal Water & Related Land Implementation Studies (P&G)
- Executive Orders 11988, 11990, 13514
- Climate Change: Mitigation v. Adaptation
- Reforming the National Flood Insurance Program
- National Committee on Levee Safety



Briefing Overview


ASFPM "On The Hill"

ASFPM "On the Hill"

1. Implementation of NFIP Reforms and BW2012
2. Supplemental Appropriations
3. Water Resources Development Act (WRDA) & Levee Safety
4. Budget
5. Etc.

Levee Safety

- National Levee Safety Act of 2007
- National Committee on Levee Safety
 - NCLS Report: Friday 10:15 in Snow Lake Rm.
- Prospects for WRDA 2011



National Committee on Levee Safety


ASFPM supports much of the Report:

- Expand & Complete National Levee Inventory including nonfederal levees
- Robust safety programs in every state
- Require flood insurance behind all levees
- Levee Hazard Classification System
- National standards & codes




Budgets & Appropriations

- NFIP Mapping
- USGS Streamgauge Networks
- Mitigation & Restoration
- Technical Assistance
- Silver Jackets
- USACE PAS/FPMS
- Risk Assessments
- Climate Impacts
- Etc.




Briefing Overview



ASFPM


Conclusion:
Preparing the Nation for Future Floods

Principles of Success



ASFPM

- **Equity**
 - Geographic
 - Intergenerational
- **Sustainability**
 - Economic
 - Environmental
- **Resiliency**
 - Existing hazards
 - Foreseeable



Visions of Success




ASFPM

- **National Leadership**
 - Smart Flood Recovery
 - Federal Investment
 - Reduces Risk
 - Drives State & Local Action
 - Reform NFIP
 - National Flood Risk Program
 - Leverage State & Local Authorities
 - Hazard Mitigation Measures
 - Sustainable Federal Investment
 - National Levee Safety Program





Visions of Success




ASFPM

- **Leverage Local Authorities**
 - Sustainable Economic Development
 - Long-Range Planning
- **Lower the Consequence**
 - Gradually relocate families and businesses from the most dangerous areas (deep floodplains & the most deficient levees)
 - Steer new development from flood-prone areas
 - Adjustments for SLR and changing precip patterns




Summary & Conclusion




ASFPM

Extreme flood events are on the rise, ...
...threatening families, businesses and economies.

Resilience is built at the community level...
...with Federal leadership, data and incentives.



Association of State Floodplain Managers



Highlights of Ms Medlock's remarks include:

- Historically, we “managed” floods. The current trend is to try to manage “flood risk.” But that’s not enough either. Instead, we must manage “flood risks and floodplain resources.”
- We have yet to account for and/or quantify the value of floodprone ecosystems for management purposes, or to set goals.
- We have yet to adequately quantify risk for management purposes, or to set goals.
- We have been trying to convey too much to the public about the variations and ramifications of flood risk. The public turns it off for many reasons, including that it is too complex, but also because perception of risk has been demonstrated to be unrelated to action.
- The messages that people DO take home are inconsistent, misleading, wrong. (They hear: floodplains are not special either in terms of risk or resources; it’s okay to build in the floodplain if you elevate; flood insurance is optional/a bother; the Corps will prevent floods; the Feds will bail you out).

8:45 AM

Setting the Stage for Local Strategizing

Matt Koch introduced Brad Loar, Branch Chief, FEMA Region IV who set the stage for Local Strategizing

Brad Loar has been with FEMA Region IV since 1979 starting his career as a Natural Hazards Program Specialist and most recently serving as the Floodplain Management and Insurance Branch Chief from 1998 – 2007 and the Director of the Mitigation Division for the past 6 years. In his position, Mr Loar is responsible for all of the Region IV Mitigation programs including flood studies and mapping, floodplain management, mitigation grants, planning, flood insurance, building science, earthquake, environmental/historical preservation, and disaster response for the eight southeastern states of Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina and Tennessee.

Highlight's of Mr Loar's remarks on tying Flood Risk into the Local setting include:

- There are five lines of inquiry in this Symposia
 - Recapping out where we want to go in terms of a grand flood risk strategy, presumably to include much more emphasis on resources (partially addressed in Symposium 1 but this is a “fresh crowd” so another look is warranted);
 - Figuring out how to measure progress on all fronts (the various components of flood risk and also the various components of the status of floodplain resources) and knowing when to plant the flag;
 - Getting the public to behave differently, i.e., to assume responsibility for risk and also to support protection of floodplain resources;

- Straightening out our management strategies (authority, policy, programs, regulations, coordination) and our messaging strategies to better achieve a grand strategy, and,
- Listing gaps in information and research.

Matt Koch gave directions on the Break

9:45 AM Break

Refreshments were served during this networking time

10:15 AM Behavior Factors and How to Effect Change in Flood Mitigation – Dennis Mileti via Video

The attendees met back in the plenary room as one large group.

Sam Medlock introduced the Dennis Mileti video – “Behavior Factors and How to Effect Change in Flood Mitigation & Preparedness”:

Dr Dennis S Mileti is the Professor Emeritus at the University of Colorado at Boulder, where he served as Chair of the Department of Sociology and as Director of the Natural Hazards Center—the U.S.’s national clearinghouse for social and behavioral science research on hazards and disasters.

Dr. Mileti is the author of more than 100 publications, most of which are on the societal aspects of hazards and disasters. His book *Disasters by Design* summarized and assessed knowledge in all disciplines and U.S. national policy for hazards and disasters. He was the founder and coeditor-in-chief of the all-hazards and all-disciplines journal *Natural Hazards Review*.

He has served on a variety of advisory boards, including the Committee on Natural Disasters in the National Research Council; the Board of Visitors to FEMA’s Emergency Management Institute; the Board of Directors of the Earthquake Engineering Research Institute; the Advisory Board to the U.S. Geological Survey’s Research Program on Earthquakes and Volcanoes; the Expert Advisory Panel for the National Institute of Standards and Technology’s study of evacuation of the World Trade Center towers on 9/11; the American Society of Civil Engineers’ Expert Panel for the Army Corps of Engineers’ assessment of the New Orleans levee failures, for which he was given the Outstanding Civilian Service Medal by the Department of the Army; and as a member of the California Seismic Safety Commission.

Dr. Mileti is currently a member of the START Center at the University of Maryland, which is a Department of Homeland Security National Center of Excellence for research on terrorism. He also serves on the NRC’s Committee to Evaluate the U.S.’s National Tsunami Warning Program and on the Board of Directors of the Southern California Earthquake Center.

The entire presentation, as seen by the participants at the 2013 GA Flood Risk Symposium, is posted in segments on the 2010 Gilbert F White Flood Policy Forum page on YouTube at: <http://www.youtube.com/user/ASFPMFRForum2010>

Behavior Factors & How to Effect Change in Flood Mitigation & Preparedness

*Dennis S. Mileti, Ph.D., Professor Emeritus
University of Colorado at Boulder*

*Gilbert F. White National Flood Policy Forum
"Managing Risk to Humans and to Floodplain Resources"
Marvin Center, George Washington University
March 9, 2010*

Behavior Factors & How to Effect Change in Flood Mitigation & Preparedness

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Marvin Center, George Washington University
March 9, 2010*

HOW DO YOU HELP PEOPLE

STOP....

LISTEN....

& GET READY....



DISCLAIMER

■ Supported by:

- U.S. Department of Homeland Security (DHS)
- Science & Technology Directorate
- Grant # N00140510629 to the START Center
- University of Maryland at College Park

■ However:

- Opinions, findings & conclusions are the author's and do not necessarily reflect the views of DHS

FOR DISASTERS

■ That Most People Think:

- Won't really happen

■ And if They Do Will:

- Happen to other people, not them

PURPOSE

■ Describe People & How to Motivate Mitigation & Preparedness

■ Provide Practitioners With:

- A "Tool Kit" for increasing public preparedness based on scientific findings

■ & Answer the Question.....

WHY DO PEOPLE THINK THAT WAY?

■ Most People "Don't Perceive Risk":

- To high consequence low probability events

■ They "Perceive Personal Safety":

- From nature's fury and other disaster types

■ And They're Right (*most of the time*)

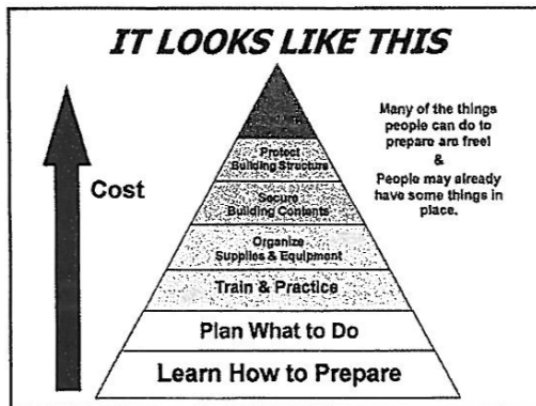
7 PUBLIC PREPAREDNESS & MITIGATION CATEGORIES

- **1. Learn How to Be Prepared:**
 - What to do before, during, & after an event to stay safe & more
- **2. Plan What to Do:**
 - Household disaster plan & more
- **3. Train & Practice:**
 - Learn first aid & more
- **4. Organize Supplies & Equipment:**
 - Stockpile enough of what you'll need & more
- **5. Secure Building Contents:**
 - Attach heavy furniture to the walls & more
- **6. Protect Building Structure:**
 - Evaluate the safety of your home & more
- **7. Safeguard Finances:**
 - Buy insurance and have cash on hand & more

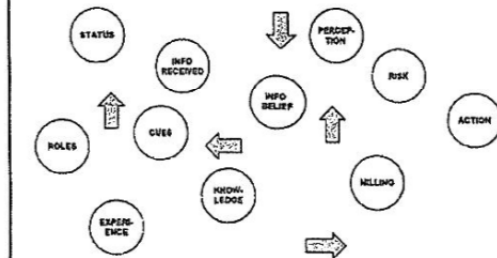
HAD MANY FINDINGS

- **But Lacked Clear Knowledge About:**
 - What's most important & what isn't
- **How Factors Relate to Form:**
 - "The process whereby information received is converted into public preparedness actions"
- **In Other Words.....**

IT LOOKS LIKE THIS



WHAT MATTERS MOST & IN WHAT ORDER.....



THE RESEARCH BASIS

BUT NOW WE KNOW

- **MEGA-STUDY Completed in 2008:**
 - "Manhattan project" for public preparedness
 - Studied public preparedness for "any reason"
 - Tested every predictive factor from literature
- **Findings = "Impeccable" Evidence:**
 - Clear, consistent, & replicated
 - Individuals/households not governments
 - But grass roots influence local government

MEGA-STUDY SAMPLE

■ Geographic Areas (N = 3,300):

- Rest of 48 states N = 2,298 (69.6%)
- New York City N = 390 (11.8%)
- Washington, D.C. N = 200 (6.1%)
- Los Angeles N = 412 (12.5%)

■ Racial/Ethnic Groups (N = 3,300):

- White N = 2,312 (70.1%)
- Hispanic N = 416 (12.6%)
- African American N = 314 (10.4%)
- Asian/Pacific Islander N = 109 (3.3%)
- Other N = 119 (3.6%)

MEGA-STUDY MODELING

■ Goal:

- Identify KEY factors/processes that motivate the public to take preparedness and mitigation actions

■ Approach:

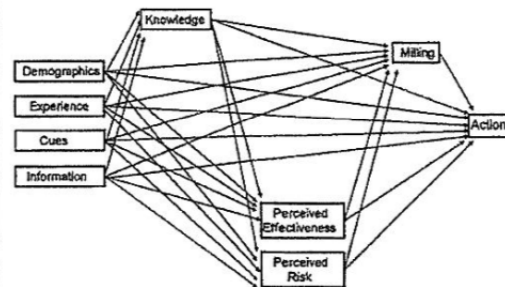
- START: examine effects of all factors ever found to correlate with public action-taking
- USE: analysis approach informed by theory
- END: short list of "key factors" & how they relate to form human process

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MEGA-STUDY CORRELATIONS

	X9b	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12	X13	X14	X15
X15a	1	.05	-.01	-.03	.10	.17	.34	.26	.51	.26	.43	.42	.34	.12	.24	.47
X15b	1	-.09	.05	-.10	-.12	.00	.15	.41	.15	.37	.13	.04	.19	.42	.15	.11
X15c	1	.04	.00	.06	.15	.09	.25	.20	.31	.18	.31	.28	.16	.00	.13	.31
X15d	1	-.07	-.01	-.05	.01	.10	.19	.40	.18	.37	.18	.06	.14	.27	.17	.14
X1		1	-.04	-.01	.12	-.03	-.05	-.05	-.04	-.01	.02	.15	-.12	-.12	-.12	.01
X2			1	.28	-.04	-.01	-.13	-.08	-.04	-.07	-.17	-.08	-.14	.07	-.15	-.19
X3				1	.18	.10	.05	-.05	.04	-.01	.02	.10	-.21	-.24	-.03	.02
X4					1	.16	.17	.07	.19	.00	.21	.21	-.14	-.20	.01	-.12
X5						1	.23	.16	.19	.13	.22	.14	.00	-.10	.13	.16
X6							1	.42	.51	.29	.50	.35	.24	.00	.23	.37
X7								1	.26	.41	.32	.14	.11	.21	.14	.20
X8									1	.46	.57	.47	.20	-.01	.19	.46
X9										1	.39	.24	.06	.17	.13	.25
X10											1	.43	.17	-.03	.18	.45
X11												1	.12	-.04	.15	.43
X12													1	.47	.25	.19
X13														1	.14	.01
X14															1	.20
X15																1

MODELS CONSTRUCTED



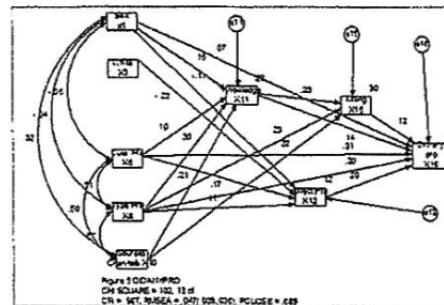
WHAT THE CORRELATIONS SHOWED

■ The 2 Variable Correlations:

- Virtually the same conclusions as everyone else who ever did this kind of research
- Dozens of factors correlate (most of them weakly) with public readiness action-taking

■ What the Mega-study Did Next.....

MODELS ESTIMATED



BREAKTHROUGH RESULTS

- **"Consistent" (very rare) Findings:**
 - **ALL GROUPS:** Hispanics, African Americans, Asian/Pacific Islanders, Anglos, Other
 - **ALL AREAS:** New York City, Los Angeles, Washington, D.C., the Nation
- **"Strong" (also rare) Findings:**
 - High explained variance (about 40%) in all models

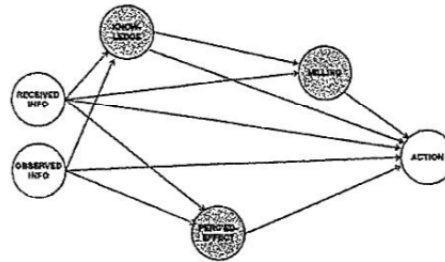
THESE TWO FACTORS DRIVE ACTION 2 WAYS

- **DIRECTLY:** Information motivates action
- **INDIRECTLY:** Information also motivates action by increasing 3 other factors that also motivate action:
 - *Knowledge:* What's known about actions
 - *Perceived Effectiveness:* How they cut losses
 - *Milling:* Talking about & seeking more information about actions

THE KEY FACTORS THAT MOTIVATE PREPAREDNESS CAN BE SUMMARIZED In 1 Slide....

IT LOOKS LIKE THIS

White = direct effects Green=indirect effects



2 PUBLIC MITIGATION & PREPAREDNESS DRIVERS

- **1. INFORMATION "Received" IF:**
 - FROM: *multiple sources*
 - OVER: *multiple communication channels*
 - ABOUT: *what preparedness actions to take*
 - EXPLAINS: *how actions cut losses*
 - THAT IS: *consistent across messages*
- **2. INFORMATION "Observed":**
 - CUES: *seeing others take actions*

THESE INFORMATION TO ACTION RELATIONSHIPS

- **Can Be Used to Increase Public Preparedness & Mitigation:**
 - Since public information is "pliable" & can be shaped by policies & programs
- **And the Relationships are Linear:**
 - More information = more public actions
 - Less information = less public actions

OTHER THINGS JUST DON'T MATTER MUCH

- **Some Other Factors Aren't:**
 - Statistically significantly related to readiness
- **Some Other Factors Are, But Either:**
 - Their effects aren't real & go away when other things are controlled, or
 - Their effects have so little predictive value that they should be ignored

THE GENERAL PRINCIPLE

- **Information is KEY:**
 - Works *everywhere* for *everyone* (in U.S.)
 - Mainstream Americans & minorities
 - Across the country & in different cities
- **Here are the 10 Steps.....**

THE THINGS THAT DON'T MATTER

- **Include Two *Shockers*:**
 - Perceived risk
 - Event probabilities
- **This Information has the Public:**
 - "Turn off and tune out"
- **How Present Probabilities to Public?**
 - DON'T

STEP 1: USE EVIDENCE BASED APPROACHES

- **All Public Education & Information Campaigns Are Not Equal:**
 - More could be accomplished if we redesign & distribute public readiness information that....
 - "*Uses research-based evidence about how to make it effective*"

AN EVIDENCE-BASED "TOOL KIT" FOR PRACTITIONERS

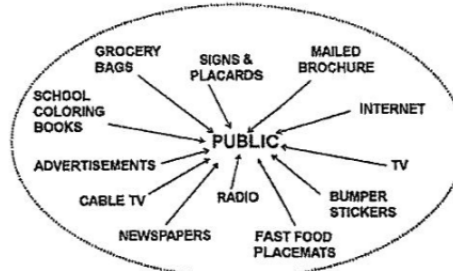
STEP 2: STOP DOING THINGS THAT DON'T WORK

- **Don't Try to "Motivate" the Public with Increased Probabilities:**
 - People need to be aware of unknown hazards
 - And increased probabilities may be useful for many other things & audiences but....
 - "*Increasing perceived risk does not motivate or predict PUBLIC preparedness or mitigation action-taking*"

STEP 3: USE MULTIPLE INFORMATION SOURCES

- **Provide Information from as Many Different Sources as Possible:**
 - *"Regardless of who you are, you alone can't provide very effective public information"*
 - You need partners to be "really" effective:
 - The more partners = the more sources
 - The more sources = the more the public does

IT LOOKS LIKE THIS



STEP 4: BRAND THE MESSAGE

- **It's About Them Not You:**
 - *"Brand the message, not the messenger"*
- **Convince Groups (including your own) To Stop Providing Unique Messages:**
 - Work with other information providers so everyone tells the public the same thing
 - *"Branded readiness messages work best"*

STEP 6: COMMUNICATE OVER THE "LONG-HAUL"

- **It's Better to Communicate:**
 - Over time & not just for a day or week
 - *"People do more after receiving the same message many times"*
- **And it's Best if Communication is:**
 - *"Sustained over extended periods of time and even better if its ongoing & doesn't end"*
 - Direct mailed brochure in midst of the stream

STEP 5: USE MULTIPLE INFORMATION CHANNELS

- **Distribute the Same Information Over Many Diverse Communication Channels:**
 - *"People do more when they get the same information different ways"*

STEP 7: FOCUS PROVIDED INFORMATION ON ACTIONS

- **The Most Effective Thing to Say to Motivate People to Prepare is:**
 - *"WHAT THEY SHOULD DO TO PREPARE"*
 - *"And where to find more about HOW to do it"*

STEP 8: EXPLAIN CONSEQUENCE REDUCTION

- **Tell Them How the Actions Being Recommended Reduce Losses:**
 - *"People are more likely to take actions if information explains how those actions can cut their losses if something happens"*

LAST: EVALUATE

- **Measure Your Starting Place:**
 - Get a "baseline" of public preparedness
- **Measure Changes:**
 - Is public preparedness changing over time
- **Evaluate Program Effectiveness:**
 - Which information components work/don't work
- **Fine Tune:**
 - Revise information provided based on findings

STEP 9: POSITION CUES FOR PEOPLE TO SEE *"The Big Ticket Item"*

- **Get Public Preparedness & Mitigation Out of the Closet and in the Streets:**
 - People are more likely to take actions they see others doing
 - *"Monkey see, monkey do applies"*

SURVEYS CAN DO THAT

INTERVIEWER: _____ DATE: _____ RESPONDENT ID: _____
HOUSEHOLD READINESS SURVEY INTERVIEW START TIME: _____ AM / PM

INTRODUCTION

Hi, I'm calling from the University of California. We are interviewing people to find out what they think should be done to prepare for emergencies and disasters in their community. This information may help us improve responses to emergencies like hurricanes, tsunamis and other disasters. As a thank you, participants will receive a \$20 gift certificate. I need to ask just a few questions to see if you are eligible to participate.

S1A. Have I reached you at your home phone?

YES SKIP TO S1D 1
NO ASK S1B 2

S1B. Is this a residence?

YES ASK S1E 1
NO TERMINATE, DIAL AGAIN 2

For this survey, I have to speak with someone who lives there who is 18 years old or older. Are you 18 or over?

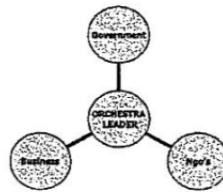
YES SKIP TO S1F 1
NO ASK S1E 2
NO ONE IN HH IS 18 OR OLDER/TERMINATE 3

STEP 10: TARGET TALKING

- **Encourage People to Talk about Preparing & Mitigating with Others:**
 - People are more likely to do something if they think doing it is their own idea:
 - Comes from talking about it with others
 - *"Use innovative ways to get people talking about preparedness actions with others"*

THE STEPS SUMMARIZED

(Conclusions from the Scientific Evidence)



- **Many Sources+Channels:**
 - Partnerships
 - Someone in charge
- **Same Message/Branding**
- **Over Time/Long-Haul**
 - Repetitive messaging
 - Direct mailed brochure
- **Actions to Take Plus:**
 - How actions cut losses
 - Encourage talking
- **Visible Action-taking Cues**
- **Evaluate & Revise**

10:45 AM Setting the Stage for National Flood Risk & Resources Policy and Strategies

Introduction of this segment was made by Matt Koch. Sam Medlock led the session with the focus being on bringing national-level issues to the local thought process.

11:15 AM Brainstorming popcorn session

This session was led by Matt Koch and Sam Medlock

The questions were:

- 1) Identify the most important indicators of ways in which risk and the status of resources can be monitored and/or measured for purposes of a comprehensive strategy for managing flood risk and resources;
- (2) List barriers that are preventing us from already using each indicator; &
- (3) Suggest ways in which the barriers can be overcome.

Doug Plasencia, ASFPM Executive Board, commented that the DashBoards that the groups would be developing during the day would “look just like the dashboard in your car” – that they “needed to be informational, guiding, and help the driver in making decisions on where to turn, where to go, what steps to take next”, etc and that the “gages needed to be clear and concise, so that the driver could ascertain important information easily – these would be the same gages used while driving the program in your particular community”.

Possible DashBoard Indicators (suggested by the Symposium Attendees):

- Awareness
- Infrastructure Readiness
- # of structures at risk
- # of structures damaged
- % of at-risk structures covered by flood insurance
- Blind Spots – external contributors
- Back up camera (for those things you would like to do over again or do better
- Existence of a local Ordinance
- Social vulnerability
- Money \$\$\$\$\$\$
- Valuation of floodplain and floodplain (ecosystem) services
- Variances from Regulations
- Open Space development
- Notification of newly mapped parcels in the SFHA (no \$ to do this!)
- Flood insurance for other flood events (other than 1%)

- Buy-out of floodplain property – vs – money for recovery (need to finding balancing point)
- Document successes of higher standards (losses avoided)
- Evaluating risks in simple concepts and terms
- Awareness of structural protection measures (condition of, risk associated with, etc)
- Greenspace Acquisition
- Better identification of repetitive loss properties (could overlay over census blocks)
- Correlation between Comprehensive Plan community and Hazard Mitigation community
- Public outreach (public meetings, surveys, etc)
- Compliant applications (tracking these for education and outreach)
- Calculation of impervious surface within SFHA
- # of Mitigation Actions being taken – could be measured by losses avoided
- Correlation of stream and creek boundaries to flood risk
- # of repetitive loss properties associated with a Mitigation Action
- Community Resilience Indicator
- Tracking greenspace or deed restricted properties
- \$ invested in mitigation over time
- Indicator using readily available data (e.g. 1) value of properties in FP; 2) property flooded that is not in SFHA; 3) current age of flood maps)

12:00 PM Issue Charge for Breakout Discussion

Matt Koch led the instructions for the Breakout Sessions

- 3 breakout groups (the color of the breakout group in on the attendee's name badge)
- Lunch to be had in the breakout room plan
- Room facilitators include Matt Koch, Jeff Sparrow, and Brad Anderson
- Comments and thoughts will be captured by Chapter volunteers in each room

The thought is that each group would:

- (1) Identify the most important indicators of ways in which risk and the status of resources can be monitored and/or measured for purposes of a comprehensive strategy for managing flood risk and resources;
- (2) List barriers that are preventing us from already using each indicator &
- (3) Suggest ways in which the barriers can be overcome.

To do this each group would have to:

- Construct a dashboard, with foam board and shaped cutouts, that reflects its collective judgment about which indicators (perhaps five or so) would be most useful in tracking management of flood risk and resources.

- The groups also will attempt to identify the ways in which the indicators can be expected to influence each other.

It was emphasized that:

- The dashboard is an “exercise.” This is NOT a call to develop a full-fledged risk management strategy
- The groups needed to think on a national scale, at least at first. Ideally, the indicators and dashboard should be scalable, but we shouldn’t get bogged down in that at this point.
- Output: the five or six indicators most important indicators of progress in flood risk management and flood resources management, arranged on a dashboard (2)

Informal notes would be made of clear barriers, cautions, or other clarifications.

12:15 PM Convene into Breakouts with Box Lunch

12:30 PM Commence Discussion on Indicators, using Dashboard Concepts

2:15 PM Report outs in General Assembly

The groups reconvened in the plenary room to “report out”

The “report out” was hoped to be a set of tentative “dashboard” gages that could indicate “how we are going” – not so much progress toward defined goals, but more a range of performance, maybe from “optimal” to “red zone”

The facilitators from each group displayed the group’s dashboard and briefly described its highlights and any problems encountered.

Matt Koch gave directions for the break.

2:30 PM Break

This was another networking time with refreshments.

2:45 PM Breakout Discussion on Indicators, using Dashboard Concept

The small groups reconvened in their break out rooms.

Participants in each break out room were to make adjustments to their dashboards (if needed) based on what they heard during the first Report Out in the General Assembly.

The group was then asked to:

- (1) Identify the behaviors that are needed from individuals and from organized entities in order to generate a positive change on one or more of the dashboard indicators (these behaviors should be prioritized and separated into two categories: individual/household behavior and institutional/collective behavior);
- (2) Identify the barriers that are keeping these desirable behaviors from taking place;
- (3) Suggest how those barriers could be overcome with management actions. After discussing the behaviors needed, the groups should reconsider their dashboard indicators to see if additional gages are needed to track changes in behavior.

Note: In conducting this exercise, the word “behaviors” is to mean acts that non-managers take, i.e., the public, Congress, local decision-making bodies, etc.

“Management actions” mean acts that we as managers (the “choir”) take (the ASFPM, floodplain managers, wetlands managers, FEMA, the Corps, etc.). The difference is that as managers we have to *induce proper behaviors on the part of others* but we can simply *decide to take* management actions or *use tools* that are smart—hence our “action agenda” at the end of the day. Some of our *management actions* should foster behaviors by others. We shouldn’t get bogged down in what everybody thinks those two words actually mean—the point is just to keep our thinking straight by assigning one word for each category.

Outputs of this session were hoped to be:

- (1) A list of the most crucial “behaviors” that will be needed to result in improvements according to the gages on the dashboard. Likely these would be divided between “individual/household” behavior and “organizational” behavior, but that is not essential. Try to get the groups to prioritize the desired behaviors so that there are only a handful—the most critical ones.
- (2) A list of the barriers that are preventing those behaviors from taking place.
- (3) A list of how those barriers might be overcome. Outputs (2) and (3) might be merged, depending on the discussion.

4:15 PM Report Outs in General Assembly

Groups were welcomed back by Matt Koch

The Report Outs:

Each group was to present:

- (1) The highest-priority (3-4) individual/household behaviors that are needed to make the dashboard indicators show progress;

- (2) The highest-priority institutional/ collective behaviors (perhaps three of our) that are likewise needed; and,
- (3) A short summary of group's suggestions for fostering needed behaviors.

The Action Items Moving Forward (Group 1)

- Decreased density in SFHA
- Increased flood insurance coverage in SFHA / other areas at risk
- Use of CRS to promote flood insurance policy savings – there is a direct correlation of the CRS rating to reduction in the cost of the flood insurance policy
- Education – make contacts; encourage them to do something positive; engage them for future endeavors
- Greenspace – identify it (how much is there in the SFHA); promote incentives for conservation easements
- Stormwater – assess the number of SW structures within your community and their condition (need for maintenance, upgrades, etc)
- Higher Standards – we need more restrictive floodplain management regulations

The Action Items Moving Forward (Group 2)

- Need to expect the number of variances from floodplain management regulations to go down with proper education and outreach
- Need to expect the 3 of repetitive loss properties to go down with proper education and outreach
- Need to assess the total number of structure affected by flood insurance policies within your community
- Need to asses the total number of structures subject to flooding – those with policies and those without flood insurance policies
- Need to promote compliance with the Flood Ordinance and bring noncompliant structures into line with the Code
- Need to assess the population in the SFHA
 - Elderly population in the SFHA
 - Minority population in the SFHA
 - Special needs population in the SFHA
- The state /regions need to assess the number of communities in the CRS
 - The rating of those communities
 - The correlations of their rating with their floodplain management practices

The Action Items Moving Forward (Group 3 – the Red Team)

- We need to gage blind spots – situations that cause peril
- We need to gage for regulatory effectiveness
 - Enforcement balanced against regulations

- We need a “Mitigation Positioning System”
 - Where are our HM Plans?
 - How effective are they?
- We need a gage for social connectivity (an information source)
 - FaceBook
 - Twitter
- We need to closely monitor complacency
- We need to also closely monitor community awareness
- We also need to closely monitor community activity – are they engaged?

4:30 PM Action Plan and Wrap Up

Matt Koch categorized recommendations for monitoring progress and for better managing floodplain risks and resources under three broad areas. They will fall into three categories: (1) authorities for risk management and resource protection, (2) policy and programs, and (3) research and data.

Terri Turner, ASFPM Region IV Director (and a former GAFM Chair), gave the Closing Remarks – she did the “3 minute version” to get the event closed and get people on the road before heavy traffic hit. Had she given her full presentation, it would have been as follows:

This morning, I am sure that many of you were asking – “Why am I here?”, “Why was I invited to this event?” and..... “How does what I do every day fit into flood risk management within the State of Georgia?”

We started out the morning by identifying a lot of the “Why’s”. Hopefully, the dialogue that was had throughout the day, during this Symposium, among these many experts – among YOU and these many experts has answered the question of “Where do I fit into this big picture?”

This event was put on as a joint effort between the Association of State Floodplain Managers (ASFPM) Foundation and the Georgia Association of Floodplain Management (GAFM) and is a spin-off of the 2010 Gilbert F White Flood Policy Forum in Washington DC – in fact, this event was a recommendation that came out of that event – take the talk about flood policy and flood risk out of DC and put in the states and to the locals, because, after all, that’s where the flood fight really is.

And, so, here we are.....

I hope if we learned anything today, to quote [Gilbert F White](#) (after who these Flood Policy events were named), we have learned “something that no nation or group of nations yet has mastered: the art of helping others to improve their lot even as differences between them grow. In a world increasingly organized on principles of individual and national equality, this will be a staggering test of sensitive understanding, cooperation, and communication.

I firmly believe that we, as a group, as a State, and in some respects, as a nation, are learning that lesson – the lesson of setting our differences aside and of breaking down our silos to help others – and in our case, to help others avoid the devastating loss suffered by flood events.

We can make a difference in the lives of our citizens in Georgia, in fact, I believe we are already doing so as we champion sound floodplain management, adapt to an ever changing climate and its more intense and more severe storm events, and, as we collectively come together in events like today to find the "best solutions" for our people, for our property and for our way of life.

Throughout his career, Gilbert F White championed those same concepts - the sound, comprehensive management of floodplains and the adoption of a broad range of adjustments to floods. He advocated, where feasible, adaptation to, or accommodation of, flood hazards rather than the "structural" solutions (dams and levees, for example) that dominated policy in the early 20th century.

Sadly, I'll bet most of you in this room have never heard of Gilbert F White. To those of us "in the business", he was affectionately known as the "Father of Floodplain Management," But it wasn't just floodplains, Gilbert made major contributions to the study of water systems in developing countries, the management and preservation of arid lands, global environmental change, international cooperation regarding water resources in such areas as the Mekong Delta and the Middle East, the management of nuclear waste, and the mitigation of a wide range of natural hazards.

He was truly a hero, a quiet unassuming hero – and, from what I am told, he would not like me referring to him as a hero, but, just the same, he was a hero.

But that's where heroes come from – quiet unassuming people, just like you, going about their everyday business trying to make their little piece of the world a better place to live and work. That's why you were here today, and that's what you have done by offering up your time, talents and expertise to this event.

Call me a dreamer, or an internal optimist, but I think Georgia will be better for what we have accomplished here today. We have come as 70+ single voices and unified as one – one voice that will work toward minimizing flood risk to humans, the build environment, infrastructure, society, and the natural and beneficial functions and resources of floodplains; one voice for establishing priorities for improving policy and program implementation here in Georgia; one voice that hopes to formulate recommendations and directions for floodplain management in Georgia for the future; and finally, one voice that will work together to develop meaningful indicators to measure progress in flood risk management at the local level within our great State.

Nobody said this was going to be easy; in fact, I believe it is going to take a lot of determination, a lot of fortitude and a lot of sheer will power to bring about a difference. But with the people in this room standing together; well, I think we are up for the challenge of making Georgia a safer place to live when it comes to flood risk.

In the broadest sense, Gilbert White promoted understanding, respect, and protection of the natural order, which includes inevitable extremes that we are faced with each and every day. In a word, he championed stewardship — preserving nature and promoting sustainable use and husbandry of the natural resources of the Earth.

White's main contributions to society and to scholarship have been classified by Kates (2011) as follows:

- *How to bring safe water to all the world's people as a human right*
- *How to reduce significantly the global toll of hazard deaths and damages*
- *How to facilitate peace, through joint water development and management*
- *How to make geography (in particular) and science (in general) more useful to the world*
- *How to enable people to coexist with nature and develop sustainably.*

Although he died in 2006, at the age of 94, White's work was years ahead of its time – that is to say, he was dealing with issues 50+ years ago that most of us are just recognizing as problems today. For example, in his 1945 dissertation, "Human Adjustment to Floods", White argued that "Floods are an act of God, but flood losses are largely an act of man". Public confidence in structural works increased occupancy of, and building on, floodplains. Design standards are sometimes inappropriate, and overconfidence develops, resulting in worse disasters if a flood defense breaches. Some 60 years later, a relevant example of the impacts of undue confidence in structural works can be seen in Hurricane Katrina's impact on New Orleans, during the summer of 2005 – what resulted was catastrophic loss within an overdeveloped floodplain.

So, in closing, I thank you for your attendance here today and I hope that you are leaving here today with a lot of action items that you can take back to your local communities and / or back to your respective organization. I challenge each of you, as you leave this place, to go out and make the difference – a difference for floodplain management that I know you were born to make – go out and be a hero – your local community, our State, and quite possibly the nation, will be better for it.

Thank you!

5:00 PM Adjourn

Addendum:

The Red Team

ASFPM Foundation Facilitator : Matt Koch

Goal: Dashboard Indicators based on a local level perspective

Items we have influence over; readiness, preparedness

Lynn Keating, Outreach Specialist, FEMA Region IV was suggested to be the Red Team's Group Reporter for Report Out sessions

Michael Burgess, Columbus, GA (1st Session) and Tom McDonald, City of Savannah (2nd session) were laptop note takers

Diane Otto, Tybee Island, took notes on the Flip Chart (both sessions)

Ken Kagy, Gwinnett County, was the Room Monitor (both sessions)



FEMA's Brad Loar makes a point during the Red Team Breakout Session

(Photo by Tom McDonald)

12:30 session:

5-6 key indicators (gages), measurable

Brainstorming sessions yields **20 proposals (recorded on flip chart) for Dashboard Indicators:**

- Regulatory Effectiveness – separate needles on one gage
 - Higher Standards = Losses avoided? freeboard?
 - Enforcement = Noncompliances? Variances?
- Mitigation Positioning System – Hazard Mitigation Plan, provides direction to community
 - Identifies goals/destination you never reach
 - Recalculating...
- Social Connectivity – number of individuals in communication with site(s)
- Community Awareness
 - Metric?
- Community Actions
 - Ignorance, Awareness, Understanding, Action
- Blind Spot Indicator
 - Debris in Creeks
 - New development impacts – impervious surface and Erosion & Sedimentation
 - Storm sewer maintenance, public and private
 - Aging infrastructure
- Cruise Control
 - Community Complacency

2:45 session:

Behaviors

- Personal and Community awareness. Catching, hooking, and keeping them
- 1. Targeted outreach: Getting community groups involved – Boys club, Lions, Boy & Girl Scouts,
- 2. Residual Outreach
- 3. Branding icon and slogan
- Education of the governmental officials
- 4. Political will. When a community officials willed to have a resilient community
- 5. Development Best Practice: Development option through impact fees. Development in proper area will have allow impact fee, but if develop in the risk area will have high impact fees
- 6. Community / Personal responsibility

- 7. Maximize CRS - Actual Rates increase awareness to build to higher standards
- 8. Stake Holder / Inner political and agency group cooperation

Barriers

1. Outreach

- Ignorance
- Cost
- Loss of momentum
- Legal Litigation
- Local personal Fear

2. Residual Outreach

- Information Flood – Over simulation of outreach
- Inaction
- Non Connectivity
- Media Option – not understanding how to do it surpasses ones capability
- Opportunity

3. Branding

- Lack of creativity or desire
- Opportunity

4. Political Will

- Lack of understanding
- Relevancy
- Politics
- Fear
- Turnover
- Personal continuity

5. Development Best Practice

- Cost
- Fear
- Interest
- Fear of change
- Lack of knowledge
- Expertise

6. Community / Personal responsibility.

- Entitlement
- Constituent
- Property rights
- Reality
- Disconnect
- Education

- Lack of champion
- 7. Maximize CRS**
 - Cost
 - Political will
 - Staffing
 - Contradictory ordinances
 - Education
- 8. Stake Holder / Inner political and agency group cooperation.**
 - Education
 - Conflicting interests
 - Territorial
 - Communication
 - No stake holder left behind

Actions

- 1. Outreach**
 - Coordinated messaging
 - Unified efforts
 - R & D rip-off and duplicate
- 2. Residual Outreach**
 - Relevant Example
 - Development Proof cues
- 3. Branding**
 - Student contest
 - Social outsource
- 4. Political Will**
 - Multi tasking
 - Make it a win
 - Campaign slogan
 - Divide and conquer
 - Make it personnel
- 5. Development Best Practice**
 - Education and outreach
 - Keep it at their level
- 6. Community / Personal responsibility**
 - Make it personal
- 7. Maximize CRS**
 - CRS networking

- Increase the incentives
- Relevant and practical
- Activities

8. Stake Holder / Inner political and agency group cooperation

- Networking
- Unifying
- Goals

The Green Team

ASFPM Foundation Facilitator : Brad Anderson

Goal: Dashboard Indicators based on a local level perspective

Items we have influence over; readiness, preparedness

Collis Brown was suggested to be the Green Team's Group Reporter for Report Out sessions

Emily Wingo, GA DNR, was the laptop note taker (both sessions)

Pam Conner, City of Powder Springs, took notes on the Flip Chart (both sessions)

Jill Bazinet, City of Alpharetta, was the Room Monitor (both sessions)

12:30 session:

1. Identify indicators

- a. Population in special floodplain
 - i. Who has insurance (does this include structures?)
 - ii. %of structures in special floodplain – works towards monkey see monkey do
 - iii. Example # of culture sites
- b. CRS Community
 - i. How much money is CRS saving the community (tie in with \$4 saved for every \$1 spent in mitigation)
 - ii. Green space savings
 - iii. Effectiveness of communities to adopting higher stds. (easy to track thru FEMA)
 - iv. How much of population is in CRS – could be tracked
 - v. Color indicators good on maps
- c. Education
 - i. Fliers/mail inserts in water bills
 - ii. Part of CRS but does not mean you need to be in CRS to do education
 - iii. What are people doing about it
 - iv. Branding message like Smokey the Bear –keep it simple
 - v. Elected officials need to be educated
 - vi. Getting the message out to everyone not limit to any particular group
 - vii. Mascot – similar to Native Indian for littering
- d. Conservation easements, greenways, parks, wetlands: track acreage
 - i. If they increase are flood risks lessened?

- ii. 65% of archeology sites in floodplain in Georgia – take different study results mapped of what is important (not just floodplain) to use where to focus funds for conservation sites. Urban forestry working on similar project.
 - iii. Establish partnerships for to purchase conservation resources
 - iv. State has ecosystem networks mapped. Need corridors of areas as part of regional planning. Data is available in Southeast ecological study by EPA.
- e. Storm water infrastructure existence (inventory) and condition
 - i. Percent Impervious surface
 - ii. Should include all infrastructure and maintenance
 - iii. Where is it located
- f. Healthy competition outreach or outreach one-up man-ship
- g. Zoning maps tied to flood risk information to identify risk
- h. At risk now and not adding anything new to flood risk – maybe measure year of construction and losses paid out. How effective land use planning?
 - i. Property buy out and create new population
 - ii. # communities regulating to minimum stds. Track with historic flooding and correlate with minimum stds and what is effective.
 - iii. Track who built what and where flooding occurred
- i. Commercial property – economic loss from flooding
 - i. Economic bench mark
 - ii. What effect on community
 - iii. % re-open and/or # days closed –partnering businesses
 - iv. Value of flood plain developed or not

2. Barriers?

- a. Data for flood insurance policy holders not 100% accurate
- b. Depict on map risk (repetitive loss) without pinpointing address from private act
- c. CRS requires FEMA or State must conduct community visit to begin program – FEMA/State staffing and travel budget issues
- d. Could CAP funding be used for CRS application? CAV has to be done first. Could do it by prioritize new CRS communities.
- e. Funding for education (does not have to be expensive) but need dollars
- f. Can I (property owner) afford insurance?
- g. Why do we want to protect certain areas are not easily quantifiable?
- h. Interest
- i. Condition of infrastructure lack of funding
- j. Infrastructure once in place forgotten about not maintained
- k. Doing it for the sake of doing it and not understanding why – just for show
- l. Who is doing the least is doing the right thing – government should not spend money perception?
- m. People forget about historical events – human nature. Would education help? Messaging important.

3. Management Actions

- a. CRS User groups and State floodplain manager association help communities to apply

2:45 session:

1. CRS: The more CRS communities the higher the rating

- a. CRS User groups
- b. Impact: Bigger-Waters
- c. Barriers
 - i. Staff- CRS coordinator is often “other duty as assigned”
 - ii. Funding -Funding comes with ISO for application after CAV
 - iii. Administrative
 - iv. Policy counts used to justify entering CRS – need % of policies in floodplain
- d. Solutions
 - i. Educate local policy holders
 - ii. Educate officials (pressure from policy holders)
 - iii. New CRS manual – educate to get best bang for the buck
- e. Behavior
 - i. Joining CRS
 - ii. Increase class within CRS

2. Flood Risk Education Training for Planning and Development and officials

- a. Low number of variances
- b. High ordinance
- c. Enforcement
- d. Website
- e. Messaging or Branding
- f. Barriers
 - i. Funding for education (travel budget)
 - ii. Same message given by partnerships
 - iii. Denial, pigheaded
 - iv. Incentive to not prohibit building in special floodplain
- g.

3. Conservation Areas/Greenspace

- a. Incentives – not limited to monetary
- b. Behavior
 - i. Green space committee
 - ii. Tree City USA similar program
 - iii. LEED
- c. Barrier
 - i. Need to sell easements
- d. Solution

- i. Deed restriction
 - ii. Include in Comprehensive Land Use Plan
 - iii. Adopt a Green space program
 - iv. Marketing tool for subdivisions by developers
 - e. Establish partnerships
- 4. Zoning and Land Use maps with flood risk maps – future land**
 - a. Proper zoning
 - b. Land use maps don't have special floodplain included
 - c. Category of land use can be justified to include special floodplain
 - d. Ordinances – higher regulatory standards
 - e. Barrier
 - i. Required
 - ii. Zoning used to conceptualize land use
 - iii. Funding
 - f. Encourage mapping and not limit to FSHP maps
- 5. Higher Developmental standards**
 - a. Incentives to encourage local govt.
 - b. Mapping
 - c. Cut and fill requirements
 - d. No Adverse Impact as part of higher standards
 - e. Barrier
 - i. Funding
 - ii. Rule/policy/ordinance develop time frame
 - f. Bigger-Waters used to educate savings in flood insurance policies
 - g. Existing messages personalized from a community perspective
 - h. Education of increase rates and cost of compliance
 - i. State like Colorado, set standards above FEMA minimums
- 6. Population in Special floodplain**
 - a. Purchaser does not find out until closing –disclosure
 - b. Notification for renters in Georgia
 - c. Education of realtors
 - d. Inspection and enforcement while under construct
 - e. Barrier
 - i. No drawback to failing to notify renters of flood risk
 - ii. People want to be near water
 - iii. Funding for buy-back program
 - iv. Mitigation programs are voluntary
 - f. Overcome barriers
 - i. Provide consequences
 - ii. Buy-back program
- 7. Storm water infrastructure**
 - a. Inventory of structures

- b. Use models to develop risk
- c. Inspection and maintenance
- d. Education
- e. Compliance
- f. Barrier
 - i. Funding to install and maintain
 - ii. People think if it is in my yard, can do whatever to it

8. On Star button

- a. Include
 - i. Education
 - ii. Warning for variance
 - iii. Lowering development standards

The Blue Team

ASFPM Foundation Facilitator : Jeff Sparrow

Goal: Dashboard Indicators based on a local level perspective (to include small cities, counties, state, etc)

Barriers and how to overcome these barriers

Peggy Hegerty, Dougherty County, was suggested to be the Blue Team's Group Reporter for Report Out sessions

Kelen Shostak, City of Woodstock (1st Session) and Sheri Harper, ISO (2nd session) were laptop note takers

Sean Roche, Michael Baker (1st Session) and Kelen Shostak (2nd session) took notes on the Flip Chart

Rodney Buckingham, Pickens County (both sessions) was the Room Monitor

12:30 session:

Potential Indicators for the Dashboard

- 1) Tracking of compliant permit (construction and building) applications that come in to a municipality and for non-compliant permit applications what is being done about them
- 2) Tracking Variances to the ordinances
- 3) Tracking turn around time for review
- 4) Gauge that shows how many structures/ homes that are in the SFHA that are in compliance with the current codes vs. non-compliant but compliant to a past ordinance vs. the number of total structures that are in SFHA
- 5) Social vulnerability (percentage of population that might need assistance during a flood)
- 6) Are there local floodplain ordinances
- 7) Number of structures in the 100 yr, 500 yr. SFHA (see #4)
- 8) Repetitive Loss properties after each flood event
- 9) Number of flooded structures and the reason they flooded for each event (ie structure failure, development upstream, etc)
- 10) Number of Building Officials that are CFMs
- 11) Permitting processes that have Floodplain Management Review as a checklist item
- 12) Number of people who take the 273 class (the shorter of the classes)
- 13) Public Awareness Survey
- 14) Amount of permanent/ deeded open space and amount of impervious area in the SFHA including the 500 year zone
- 15) Population that lives in the floodplain (see #5)
- 16) Number of properties mitigated through government programs
- 17) Infrastructure readiness (certain amount of capacity required)

- 18) Number of communities in CRS and what classification they are also looked at on a policy basis
- 19) Communities with Conservation Subdivision ordinances
- 20) Communities with master plans that incorporate floodplain management, hazard mitigation plan integration, future land use restrictions
- 21) Acreage of impervious area within the floodplain
- 22) Structural controls located in floodplains
- 23) Work days lost
- 24) Number of people displaced/ deaths
- 25) Number of buildings with closed in 1st floor after initial construction (see #4)
- 26) Number of storm water utilities
- 27) Density allowed for future population in SFHA

Narrowed Down List

1. Number of Buildings in SFHA that are compliant vs total structures
2. Repetitive Loss Properties
3. Variances from Floodplain Ordinances
4. Number of structures impacted by flood events and cause of the flooding
5. Population within SFHA
6. Number of structures mitigated in the SFHA
7. Number of communities in CRS

Barriers to Indicator

#1- Labor intensive data collection and funding. The number of these structures can be very dynamic
Overcome: create these resources

#2- Not all flood losses are reported because citizens think that their policy will be canceled with too many claims which is false. The data is not always accurate. Loses to uninsured properties. Overcome: education, outreach, better QA/QC of the data. Training disaster teams on SDE and go out as a team after even minor events and tracking data better.

#3- On the floodplain administration level, variances are not going to be issued for floodplain ordinances. The time these variances are going to occur are at the political level. As a metric we would like to see this going down over time. The barrier would be how to track this. CRS participant, this could jeopardize your rating and/or your NFIP participation. Overcome this barrier- create a tracking system and coordination of this tracking system with other communities in the State.

#3- Another barrier would be the WHY of a variance and how to incorporate this in the indicator

#4- Not having a good inventory of the structures in the SFHA. Manpower to go out after the events.
Overcome- collaborative agreement with other communities for help

#5- Just need to do the analysis- no real barriers

#6- Matter of compiling the data. The data is there.

#7- The data is available matter of compiling. On a local level- funding for staffing to do the CRS.

2:45 Session:

Behaviors and Barriers

Incentive 1: Number of Buildings in SFHA that are compliant vs total structures.

Desired behavior is more compliant buildings and fewer total buildings in the floodplain. To overcome this we need education. Higher standards can help. Barrier is people want to live next to the water. This can be overcome by education. Barrier is people don't want lower density on the property. This can be overcome by density transfers. How to get more compliant buildings: cumulative substantial improvement provisions, lower substantial improvement or damage thresholds.

Indicator 2: Repetitive loss structures.

Desired behavior: reduce number of RL structures by mitigation. We can publicize funding availability. Send out information about mitigation actions. Additional barriers are funding availability, and communities pre- planning for acquisition. We can take away incentives to keep properties in harm's way. Another barrier is lack of coordination within departments regarding tracking substantial damage and substantial improvements.

Indicator 3: # of floodplain ordinance variances.

Desired Behavior is less variances. Barrier is lack of knowledge of floodplain ordinances. To overcome this, we can publicize this—website, education to development community and education to elected officials. Incorporate environmental education into mandatory elected official training.

Incentive 4: Number of structures affected by flooding:

Desired behavior is fewer structures affected by flooding. Barrier is political will. Education is key to overcoming. Another behavior is higher standard. Need to define standards and keep them uniform. Barrier is higher cost of construction and political will. Barrier to uniform standards is ceding authority.

Incentive 5: Population within SFHA.

Desired behavior is getting people to not want to live there. Barrier is cost of property. Can be overcome by targeted outreach to vulnerable people. Offer buyouts. Barrier is reluctance to leave, especially family property. Proactive outreach can help. Barrier is amnesia.

Incentive 6: Number of structures mitigated

Behavior is we want to get people to mitigate their structures. Barrier is knowledge, money (funding). To overcome this we need education of elected officials, willingness of citizens to sell, educate public on cost savings. Barrier is cost of mitigation. This can be overcome with standardized mitigation options. Behavior is: wanting to do what's right after damage has occurred. Barrier is also that mitigation approach takes too long. This can be overcome by pre planning.

Incentive 7: Number of communities in CRS

Desired behavior is higher CRS rating. Barriers are staffing and funding, lack of knowledge.. User's groups can help consolidate resources.

Desired behavior is state getting more communities in the CRS program. Barriers are communities understanding the benefits. There is a perception that FEMA will fix it. This can be overcome by education. Show cost savings to public.

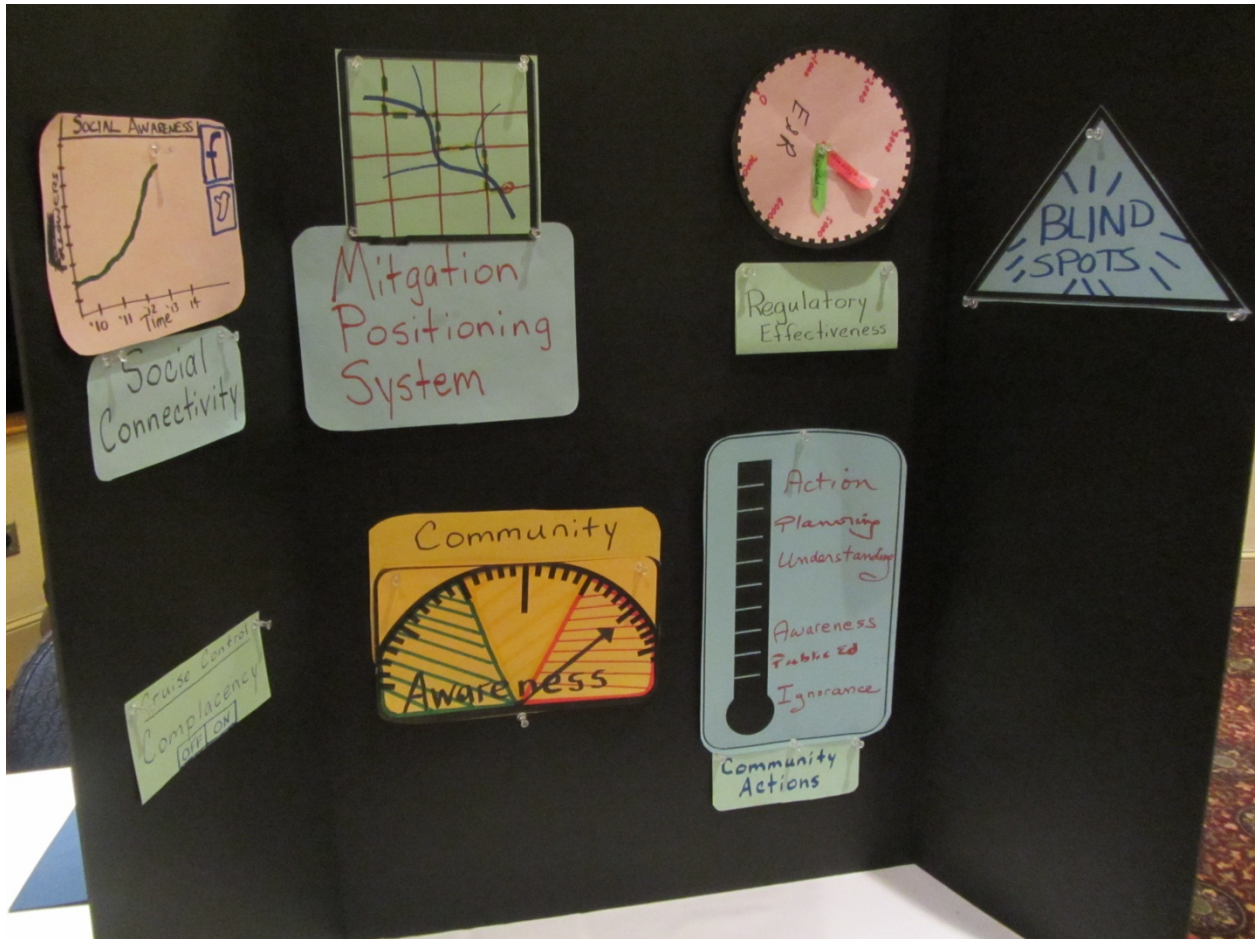
Perspectives:

From the Red Team Facilitator, Matt Koch:

“Our breakout group was fully engaged in working towards developing meaningful dashboard gages, then working towards defining behaviors and actions to make positive changes in those indicators. I was impressed with the collaboration between 4-5 distinct interest groups (consultants/government/locals/state, etc.), working together to define the gages.

Of particular interest was the development of a novel gage I’ve never seen before when participating in these flood risk symposia – the Mitigation Positioning System (MPS) gage – similar to a GPS in your car, the MPS would provide a guided path to mitigation actions/success, and is “reroute-able” as changes in the community are encountered, much like a GPS. There was a high level of creativity in our group, and more importantly, a commitment to “what’s next” – they want to know what they can do next to implement behavioral actions to effect positive changes.

FEMA representatives were very outspoken about their views of how things should work, and their views were not necessarily aligned with their current actions – very encouraging that they want to see positive changes/enhancements to programs.”



The Red Team Dashboard

(Photo by Tom McDonald)

From the Red Team Reporter, Lynne Keating:

"The one factor that impressed me about our Red breakout group was the energy and engagement of all the participants both in brainstorming and discussion. We had a good balance of contractors, local, state and federal participants who each brought a different perspective to the discussion. Everyone was fully committed to working on new insights and relevant actions particularly in reference to dashboard gages. I would agree that our most animated discussion and interest centered on the Mitigation Positioning System (MPS) gage. I think our group really engaged in creative thinking but also was very committed to looking at ways some of our ideas could be implemented into being proactive in outreach activities when we returned to work.

I also felt that there was a real alignment of thinking across our different disciplines and that we worked as a unified group of people intent on breaking the wall of misunderstanding about flood prevention. We also had good discussion about behavior and change, what are some real

barriers and what we can do within each of our roles as participants whether we be local, state or federal.

I think most impressive what came across was that everybody in the room really cared about the issue of prevention and education regarding flooding and mitigation. We weren't just doing time in the room. That is enlightening and inspiring."

From the Green Team Facilitator, Brad Anderson:

"Our group encompassed a diverse background of local, state and federal regulatory officials along with floodplain consultants, CRS representatives, and citizens from floodplain communities. This group was fully engaged in the discussion of Flood Risk within Georgia; so much so, that we found it difficult to wrap up the sessions in a timely manner. Great discussion and great input from all that attended.

With respect to the "dash board" indicators of flood risk, the group focused on several items with the most noteworthy including: (a) the number of CRS communities and the value-added benefits related to flood risk, (b) education programs at the local and state level including a program of educating the elected officials (this discussion also included utilization of a "branding" message" such as Smokey the Bear to keep the message simple); (c) land use planning and zoning as a means of tracking historic flooding as well as providing insight to the need for higher standards; and (d) integration and acquisition of conservation easements, greenways, parks, and wetlands.

The group also identified several solutions to the flood risk indicators in terms of moving the dials in a positive manner. The barriers to moving these dials were often tied to a lack of funding, as well as education. Notwithstanding these barriers, the group identified the need to:

- *establish more CRS communities;*
- *promote floodplain risk education programs for local officials, politicians and the general public;*
- *acquire flood risk property, conservation easements and greenspace;*
- *improve zoning and land use planning maps illustrating flood risk; and*
- *establish higher development standards.*

The final discussion on the dash board included a unique approach by adding an On Star button to gather information and track these improvements. Should other gages on the dash board appear to be malfunctioning, the On Star button is utilized to mitigate the problem. This was a new indicator and offered a unique perspective for tying all of this flood risk information together."

From the Green Team Reporter, Collis Brown:

"The symposium was well organized and well attended from a variety of sectors. The purpose for the meeting and its goals were clearly described and outlined, which helped to provide direction for the breakout sessions. The attendees appeared attentive and receptive to their roles of participation.

As our group dialogued about how our dashboard would look it was interesting to observe the various perspectives – federal, state, local, academia & consultants – how they became woven into the development. In use of the "fuel" gauge to describe behavior it was noted that only "premium" fuel be used to reference a higher level of action and not just the "regular" or status quo.

Thanks to ASFPM and GAFM for an outstanding job in putting together the symposium. Hopefully a mutual benefit will be derived from this effort for both the event sponsors and participants."

From the Blue Team Facilitator, Jeff Sparrow:

I was very impressed by the level of engagement of the whole group for the day. During the first breakout session the group brainstormed 27 potential dashboard measures, then narrowed the list to seven to create their dashboard.

The energy remained for the second session with healthy discussion along with give and take as the group discussed the desired behaviors to move the "needle" and how to overcome the barriers to the desired. Many of the barriers revolved our education and outreach. The education was of elected officials, citizens, and other professionals. A unique opportunity identified was to include a module on floodplain management/mitigation during the sessions that all newly elected officials in the State must attend.

Again I was impressed by the group and it was pleasure to work with such a passionate, professional, and educated group of people. I look forward to hearing about the steps that GAFM has taken to improve floodplain management and mitigation in the State based on the discussion's from the Symposium. Maybe a report out will be given during the 2015 Annual ASFPM Conference in Atlanta!

From the Blue Team Reporters, Peggy Hegarty, Kelen Shostak, and Sean Roche:

Our session participants included a good cross section of private consultants and federal, state, county and local government employees encompassing a wide range of floodplain management-related responsibilities. Many of our potential indicators for the dashboard focused on development regulations, the permitting process, and development in the SFHA. Our second

highest category of indicators was the vulnerability of the population to flooding, and our third highest group of indicators was in regard to the infrastructure's ability to handle flooding ("infrastructure readiness") – although this one did not receive enough votes to stay on the final list of dashboard indicators, to my great surprise.

Knowledge of floodplain management by both the building department staff and general public; the number of communities in the CRS program and their classifications, and repetitive loss properties and their mitigation were also discussed. The participants interacted well and stayed focused, with discussions and some debate throughout the two sessions.

The major barriers our group identified were the lack of funding for floodplain management activities, political will to stop building in the floodplain or to enact more stringent regulations, the lack of knowledge in regard to regulations, and the importance of floodplain functions, and the desire of people to live near the water and the propensity for those same people to move back to their neighborhoods after a flood. Our recommendations included higher development standards, educating elected officials, staff, developers and the general public, improving dialogue between floodplain management and planning departments, providing a forum to share best practices and lessons learned, streamlining the mitigation implementation process, as well as to inform floodplain residents about retrofitting techniques.

We could feel the synergy among the whole group of participants in the morning sessions and in our afternoon brainstorming sessions. One suggestion on how to improve the voting process within the groups would be to use sticky dots. Once the group has finished brainstorming ideas, each participant would be 6-7 sticky dots to place on the ideas they want to vote for. This method would allow more anonymity (as some people may have been influenced by the crowd to vote for a particular item or may have been hesitant to vote for a particular idea that had low or no votes). This method would also "get people out of their seats" and cause them to interact more. Obviously, time constraints would be a factor in using this method of voting, although it is felt that it would be extremely accurate as people lost count of what they had voted for during our session.

Additional time after the report outs would enable the symposium participants as one group to brainstorm, ask questions, and further expand on a couple of the more original recommendations suggested by the three teams.

A great next step would be to discuss how we could employ the communication techniques learned from the Mileti presentation to develop communication skills to articulate the ideas (to citizens, to community leaders, to other organizations, etc) from the breakout groups.

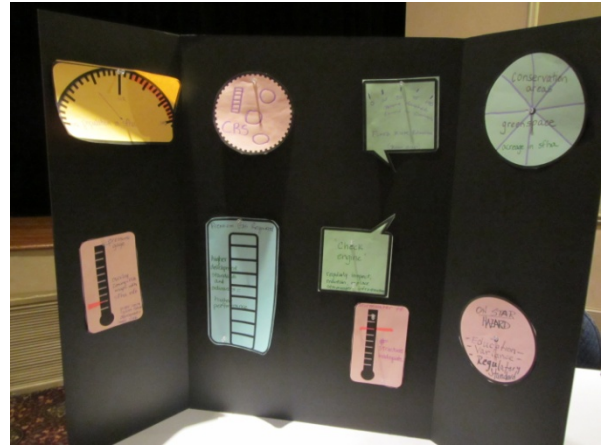
Overall, it was a fun and productive experience. The challenge is to carry it forward.....

Photos:



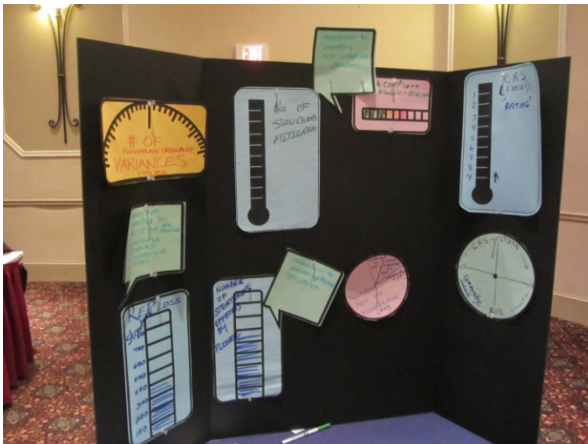
Brad Anderson's BreakOut Group – The Green Team

(Photo by Tom McDonald)



The Green Team's Dashboard

(Photo by Tom McDonald)



The Blue Team's Dashboard

(Photo by Tom McDonald)



Diane Otto shares her views at the Plenary Session

(Photo by Tom McDonald)



Jeff Sparrow's BreakOut Group – the Blue Team

(Photo by Tom McDonald)

Other Resources

Background papers from the 2010 Gilbert F White National Flood Policy Forum:

ASFPM Foundation, 2010. *Managing Flood Risks and Floodplain Resources: Symposium I Background Reading for the Third Assembly of the Gilbert F. White National Flood Policy Forum, March 8–9, 2010.* Available at http://www.asfpmfoundation.org/forum/Forum3_Symp_1_Background_material_FINAL.pdf.

ASFPM Foundation, 2010. *Managing Flood Risks and Floodplain Resources: Symposium II Background Reading for the Third Assembly of the Gilbert F. White National Flood Policy Forum, March 8–9, 2010.* Available at http://www.asfpmfoundation.org/forum/Forum3_Symp_2_Background_material_final.pdf.

Presentations from the 2010 Gilbert F White National Flood Policy Forum:

“Challenges in Managing the Natural and Beneficial Resources” (PowerPoint) - *Jeanne Christie, Executive Director, Association of State Wetland Managers.* Available at: http://www.asfpmfoundation.org/pdf_ppt/forum/Christie_GFW_2010_Challenges_Managing_Natural_Beneficial_Resources.ppt

“Setting the Stage for National Flood Risk & Resources Policy and Strategies” (PowerPoint) *Doug Plasencia, ASFPM Foundation Trustee; Michael Baker, Jr., Inc.* Available at http://www.asfpmfoundation.org/pdf_ppt/forum/Plasencia_GFW_2010_Forum_Opening.ppt

INFLUENCES ON BEHAVIOR

The ways by which floodplain managers seek to influence behavior toward flood risks and floodplain resources can be thought of as falling into five broad categories.

- Information & Education (messages to bring understanding and awareness)
Examples: flood maps, handbooks, etc.
- Persuasion & Marketing (messages to induce specific behavior)
Examples: Turn Around, Don't Drown; FloodSmart, etc.
- Incentives & Disincentives (financial rewards, technical assistance, funding, recognition)
Examples: mitigation grants, Community Rating System, conservation easements, etc.
- Standards (guides for degrees of safety or quality)
Examples: 100-year flood, freeboard, “clean” water, “no net loss of wetlands,” etc.
- Mandates (laws or rules requiring or prohibiting behavior, with penalties attached)
Examples: Coastal Barrier Resources Act, mandatory

(Ref: 2010 Gilbert F White National Flood Policy Forum Final Report)

Symposium Attendees

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A Word of Thanks.....

On behalf of the Georgia Association of Floodplain Management (GAFM), we would like to thank the ASFPM Foundation, the ASFPM Foundation Events Committee, and, in particular Doug Plasencia, Matt Koch, Brad Anderson, Jeff Sparrow, Sam Medlock and Diane Brown, without whose tireless efforts, this Symposium could not have taken place.

We look forward to implementing the action items outlined in the 2013 GA Flood Risk Symposium as we move our shared focus away from a misleading floodplain boundary line (on the National Flood Insurance Rate Map) to assessing true risk within the community and the impacts associated with that same risk. We look forward to being more informed leaders and decision makers all levels and it is hoped that we collectively use the same platform for identifying risk (and resources) as we go about our day-to-day duties.

We look forward to identifying and implementing locally based goals and objectives that will serve our communities well.

And, finally, we will continue to strive to measure our successes and learn from our mistakes – with alleviating the human pain and suffering caused by flood losses being our benchmark, both today and in the future.....



Diane Brown, Sam Medlock and Matt Koch hard at work during the 2013 GA Flood Risk Symposium

(Photo by Tom McDonald)